[The Sergeant-at-Law and the Doctor of Medicine.]

CHAUCER'S PORTRAIT GALLERY.

THE SERGEANT-AT-LAW.

A very characteristic feature of old times in England is shown to us in the 'Canterbury Tales,' where the members of so many different classes of society, being brought together by a common object, mingle freely together; the rich and the proud undeterred by any of that feverish desire to stand aloof from their fellow-men; and the poor and humble, by any of that chilling sense of dependence which too often mark the relations of those classes in our own day. What motive of an equally powerful nature to that which induced our ancestors to go on pilgrimages to so many different shrines (could such a motive be found) would now suffice to bring the sergeant-at-law and "justice full often at assize" into intimate companionship with the ploughman, the miller, the host? Yet there is no reason to doubt Chaucer's fidelity: he only painted what in all probability he had frequently seen; whilst at the same time it must be observed that sergeants-at-law were then personages of still greater importance than now. They acted, it appears, as judges; and they were chosen only from among the most opulent as well as most learned members of the profession. It would have been highly unreasonable indeed to have done otherwise, considering the great expenses that attended their investiture with the sergeant's robes and coif. They were bound to give a "great dinner like to the feast of a king's coronation," which was to "continue and last for the space of seven days;" and it was expressly provided, says our authority,* "that none of those elected should defray the charges growing to him about the costs of the solemnity with less expenses than the sum of 400 marks:" an immense sum in those days. The chief items, next to the dinner, were the gold rings, one of which was given to every important personage present at the ceremony of creation, from the prince down to the "officers and other notable men in the king's courts;" and the countless suits or liveries of cloth that were expected from the newly made sergeant-at-law by the members of his household, by his friends, and by acquaintances. As several sergeants were generally created at the same time, it was found most convenient for them to join in giving one common feast, which accordingly became a most magnificent affair, and was generally held in one of the chief palaces of London. The eleven sergeants made by Henry VIII., in 1531, kept their feast at Ely-house, Holborn, when the king himself, with his consort Katherine, honoured them, on the principal of the five days the feast then lasted, with his presence. They sat, Stow has remarked, in "two chambers," that is to say, apart from each other (they were divorced within the next eighteen months); and the foreign ambassadors occupied a third. "In the hall, at the high table, sat Sir Nicholas Lambard, mayor of London, the judges, the barons of the exchequer, with certain aldermen of the city. At the board on the south side sate the master of the rolls, the master of the chancery, and worship-

* Dugdale's 'Origine Judiciales.'

ful citizens. On the north side of the hall, certain aldermen began the board, and then followed merchants of the city. In the cloister, chapel, and gallery, knights, esquires, and gentlemen were placed. In the halls, the crafts of London. *The sergeants-at-law and their wives kept in their own chambers.* It were tedious to set down the preparation of fish, flesh, and other victuals spent in this feast, and would seem almost incredible." He ends by confirming Dugdale's remark, "it wanted little of a feast at a coronation." We must add to this account from Stow, that minstrels and trumpeters were stationed without the hall the whole time, playing at every course. With such extraordinary expenses to meet, on their initiation into the new office, we need not be surprised to find that it was sometimes necessary to summon persons by writ to take it, even although at the same time there was no "man of law throughout the universal world, which by reason of his office gained so much as one of these sergeants."*

Such were the rank and importance of this member of the law, at the time the poet introduced him into the Canterbury pilgrimage.

"A Sergeant of the law, wary and wise,
That often had ybeen at the *Parvise*,
There was also, full rich of excellence.
Discreet he was and of great reverence;
He seemèd such, his wordes were so wise:
Justice he was full often in assize,
By patent and by pleine† commission.
For his sciénce, and for his high renown,
Of fees and robés had he many one.
So great a purchaser was no where none:
All was fee-simple to him in effect,
His purchasing might not be in suspect;
Nowhere so busy a man as he there was,
And yet he seemed busier than he u'as.
In termés had he case and domés all,
That from the time of king Will weren fall.‡
Thereto he could endite, and make a thing
That couldé no wight pinch at his writing;
And every statute could be plain by rote.
He rode but homely in a medley coat,
Girt with a seintŞ of silk, with barres small.

Warton, speaking of the word Parvis, says that it is supposed to be derived from Paradise, which derivation Richardson adopts in his Dictionary. Many of our old religious houses had a place called the Paradise; hence, perhaps, the name came to be applied to the porticos of churches.

We find in Chaucer's translation from the 'Roman de la Rose' the following passage:—

"There was no wight in all Paris
Before Our Lady|| at Parvis,
That they ne might the booké buy:"

and Warton says that in the year 1300 children were taught to read and sing in the Parvis of St. Martin's church at Norwich. The same word was also used in connection with the schools of "Sophistry" formerly existing in Oxford, which consisted of academic exercises, principally in logic, held in the afternoon. The Parvis to which Chaucer's Sergeant-at-Law "often had ybeen," stood in the same relation to the law that the Oxford schools did to logic. "Here not only young lawyers repaired to learn, but old sergeants to teach and show their cunning."¶ Some suppose the Parvis of the Metropolis to have been in Old Palace Yard, before Westminster Hall; others, with more probability, on account of its vicinity to the Inns of Court, name St. Paul's. There can be little doubt but that the latter was the place, as Dugdale speaks of the "Pervyse of Paules."

Our Sergeant, it appears, had received many "fees and robés;" another custom, as regards the robes, peculiar to ancient England, when all the officers of the superior courts of law received from the king's wardrobe such clothing both for summer and winter. Of the dress of the Sergeant in the fourteenth century, the visions of Piers Plowman give us some idea. We read there,—

"Shall no Sergeant for his service wear no silk hood
Nor pelure on his cloak for pleading at the bar."

In the Sutherland manuscript he wears a scarlet habit, with open sleeves, faced with blue, and ornamented with small bars or stripes. His white furred hood is upon his shoulders, and he wears the characteristic distinction of the Sergeant, the coif upon his head. This "medley" dress continued to be worn even in Dugdale's time. The robes were then of three colours, murrey (or dark red), black furred with white, and scarlet. We may observe, in conclusion, that among the exquisite touches of satirical description with which the Canterbury Tales abound, there are none happier than that which paints one of the little affectations of the eminent lawyer:

"No where so busy a man as he there u'as,
And yet he seemed busier than he was."

* Dugdale. † Pleine—full.

‡ That is to say, he was thoroughly acquainted with all the cases, and dooms, or decisions, which had been given from the time of the Conqueror.

Ş Cinct, or girdle. || Notre Dâme.

¶ Waterhouse's Commentary on Fortescue.

AMERICAN GROUSE.

[From a Correspondent.]

The two varieties of grouse most generally known of any belonging to the continent of North America are the pinnated grouse (*Tetrao cupido*) and the ruffed grouse (*T. umbellus*). The former is by no means so common as the latter, and this comparative scarcity no doubt tends to enhance its merits and the value attached to it. The pinnated grouse, or heath-hen, as it is frequently called, in size, shape, and habits bears a strong resemblance to our red grouse; but the plumage is not at all alike, for the former is of a peculiar gray or dark ash-colour, without the dusky-red of the latter. Perhaps the heath-hen may be a little the larger of the two, but the difference, if any, is undoubtedly very trifling. The flavour of its flesh much resembles that of our own grouse, but the colour of it is scarcely so dark. These birds are found for the most part in those wild and elevated situations where, either from the sterility of the soil or the very considerable altitude, no forest-trees are found, the only vegetation being two or three sorts of heath and a little alpine moss; and hence the American name of barrens seems very significantly applied to localities of such extreme desolation. The subsistence of these birds is therefore exclusively confined to the young shoots of alpine plants or the berries they produce; for during the rigours of a North American winter they are never known to migrate to more sheltered and milder regions, or indeed to any situations which do not yield their favourite food.

They are chiefly found among the Green Mountains of Vermont, the White Mountains of New Hampshire, and occasionally among some of the other mountain-ranges of the Eastern states, as well as in the adjacent British colonies. But they are not confined to the Eastern states, for in many of the various spurs of the Alleghany Mountains, throughout the entire distance from the Hudson, or North River, to the southern boundary of Virginia, comprehending portions of the states of New York, New Jersey, Pennsylvania, Ohio, and Virginia—wherever these lofty barren wastes present themselves, the pinnated grouse is found in greater or

smaller numbers. They are said also to inhabit the regions in the vicinity of the Rocky Mountains. As they are only to be shot on the wing, which is but little practised by American *hunters*, as they are called, they are somewhat rare in the markets, and will occasionally fetch six shillings a brace.

The ruffed grouse, or drumming partridge, as this bird is commonly called in the Eastern states, or the Pennsylvania pheasant, as it is usually named in the Middle states, is nearly of the same size as the pinnated grouse, but altogether of a different character as regards its habits and general appearance. Unlike the former, these birds are bred in and continue to frequent the forests, even after large extents of the timber are cleared away by the woodman's axe, though they occasionally wander a short distance into the adjoining pastures or corn-fields, but more particularly in quest of wild summer fruit and berries than in search of grain or other farm produce. When flushed, whether in an open clearing or in the woods, they invariably perch upon the limbs of some forest-tree; for notwithstanding I have sometimes known them to ramble to the distance of half a mile or more from the nearest part of the forest (though only in the summer season), whenever they happened to be put to flight they were sure not to alight until they had reached the fastnesses of their favourite woods.

They for the most part keep in coveys of eight or ten until the young ones are full-grown; and afterwards, though occasionally found single, they are more commonly met with in pairs. When alighting on the limb of a tree, for the most part at a considerable elevation, this bird exhibits more sagacity than most other birds, or, indeed, than any of the other varieties of the grouse family. It selects a pretty stout limb for its perch, and places itself in an almost upright position, so that the hunter often finds it difficult to discover the exact spot; for although it may place its head in a position to look down with one eye upon its enemy, the head of the bird being small, the sportsman can seldom discover it at so great an elevation. The barking of a dog, trained to the business, will often put it off its guard; for its whole attention being bestowed upon the quadruped, the hunter takes advantage of the first exposure of its body to his sight.

This bird evidently takes the name *ruffed* from the tufts of feathers on each side of the lower part of the neck, which, when excited in any way, it erects at pleasure. They are, however, peculiar to the male, since the female has no ruff to set off her charms; neither is her general plumage nearly so beautiful as that of the male. The feathers covering the body are not dissimilar to those of our hen pheasant; but the back and neck feathers of the male bird, though not so deeply tinted as those that clothe our male pheasant, are beautifully shaded with hues of green, orange, and purple; and hence, in all probability, it has acquired the name of Pennsylvania pheasant. The tail, which is fan-like, adds greatly to the elegant appearance of this bird, for it is composed of feathers beautifully barred with rich brown and black; and, like the turkey, it has the power of moving its tail when so erected to the right or to the left to suit its convenience or some capricious feeling: the ruff and the tail are usually erected at the same time. During the summer and autumn these birds feed upon the wild berries which they find in the woods or in the vicinity of their outskirts; but they also crop the young buds and shoots, though they rarely meddle with any species of grain or pulse or other productions that the farmer's garden may produce. In extremely severe winters I have known them, in both New Jersey and Pennsylvania, driven to crop the green leaves and berries of the narrow-leaved laurel; and although but few of them appear to have died, yet their flesh has been rendered so unwholesome, that all persons who have partaken of it under such circumstances have felt themselves severely affected.

American ornithologists have not omitted, when referring to the ruffed grouse, to notice the peculiar drumming noise that it makes by striking its wings against the sides of some fallen tree upon which it takes its stand, which it practises during both spring and autumn, but particularly during the former season. This drumming is indeed a very curious characteristic of those birds, being altogether unlike the sound produced by any other tribe of the feathered race. In most cases a good-sized tree, but one that has been stretched upon the ground for many years, and which has become partially hollow and decayed, is selected to *drum* upon; and if the rough bark has decayed and fallen off, so much the better. The bird, having selected a tree of this sort, will mount and walk along it from end to end; and then returning, it will select a favourable place, take its stand, spread out its wings, and commence striking the tree with the hardest part of them, repeating the blows with a measured, but an increasing degree of quickness, until the blows become so quick that it is impossible for the ear to count them. A few of the first strokes are nearly a second apart; towards the conclusion, ten or twelve times that number are given in the same space of time, the entire operation not occupying more than eight or ten seconds. This drumming is not repeated immediately; sometimes the bird will wait half a minute, sometimes a whole one, and occasionally several minutes, before it recommences the same motion with its wings; and in this way it will often amuse, at least employ itself, for several hours in the day. When the fallen log or tree upon which one of these birds takes its stand is peculiarly favourable for eliciting a loud noise, this drumming, on a calm day, in the perfect stillness of the forest, may be heard at the distance of nearly a mile; and when heard at a considerable distance, it somewhat resembles the dying rumbling sound of a distant peal of thunder, and far from unfrequently I have known it mistaken for such. The drumming I have here described very commonly brings upon the drummer its own destruction; for the hunter, being attracted to the spot by the well-known noise, has little difficulty in approaching within gun-shot distance, and shooting down his unwary victim. To an unpractised ear, however, it is difficult to fix the spot from whence the drumming proceeds, and the sportsman sometimes comes upon his game before he is aware, and scares it away.

The flesh of these birds is white, delicate, and well-flavoured, and is much esteemed where they are scarce. But the rural population of America do not seem to set much store by scarcely any species of game their country supplies them with; and in proof of this observation I will remark that in many of the new settlements where the pinnated grouse are pretty abundant, I have, during the winter season, many a time known the hunters bring these birds to me for sale or for barter, and a sixteenth part of a dollar (very little more than three-pence) was the price per head in money, and in the way of barter a pound of pork would command the largest and plumpest of them. As regards the estimation in which venison is held in the same country, I have frequently known it sold at a penny a pound by the quarter, or three halfpence for the saddle, or six pounds of venison bartered for one pound of salt pork.

We ought, in humanity, no more to despise a man for the misfortunes of the mind than for those of the body, when they are such as he cannot help; were this thoroughly considered, we should no more laugh at a man for having his brains cracked than for having his head broke.—*Pope.*

[Bromley Church.]

RAILWAY RAMBLES.

THE RAVENSBOURNE RIVER.

[Concluded from page 158.]

BETWEEN Hayes and Bromley, at a place called Hayes' Ford, the high road crosses the Ravensbourne, which here increases somewhat in size, and advances with a little more rapidity: the tiniest of streams has changed into one of the smallest of rivers. Leaving it, a little on our left, to wind round the base of Bromley hill, we take a shorter path through the fields towards a delightful green lane which runs over the brow of an eminence opposite that on which Bromley is situated, and so reach that very clean, agreeable-looking town. Its name is derived from *Brom-leag*, a field or heath where *broom* grows; an etymology confirmed by the present aspect of the neighbourhood. Bromley dates its history from no less remote a time than that when the county had its own monarchs; one of whom, Ethelbert, in the eighth century, gave Bromley to the bishops of Rochester, who appear to have ever since made it their residence. One of them, Bishop Ford, was murdered here in 1261. The existing palace is a plain unassuming edifice of brick. In its gardens we find a well, formerly much resorted to for its admirable medicinal qualities, and from the fact that there was an oratory attached to it, with indulgences for all who came hither to worship. The oratory long ago sank into ruin, and the well itself was forgotten and lost sight of, till the year 1754, when it was repaired and a picturesque-looking covering or roof on wooden pillars placed over it to shelter those who came to drink of its healing waters. It is now again much decayed. Bromley is also distinguished for a very magnificent charitable institution. As we pass along the town towards the London extremity, we see on the right a very stately manorial-looking building of brick, with wings projecting forward a little from each end, and a handsome doorway and flight of steps in the centre; the whole surrounded by beautiful and extensive grounds. This is Bromley College, founded by Dr. Warner, bishop of Rochester, who died in 1666, for the widows of clergymen (to the number of twenty) of the established church who might be left in distressed circumstances. Subsequent benefactions have doubled the number. The inmates receive 30*l.* 10*s.* each per annum. Five additional houses have also just been built by Mrs. Sheppard for the daughters of such ladies as, dying in the college, have left their children destitute. The church of Bromley is an interesting structure, and would amply repay us for a closer inspection than we can now make. It has a lofty square tower with a turret at one of the corners, which seen from a distance makes one anticipate the finding of the keep of some old fortress still frowning defiance over the broad valley extending below, rather than a house of God stilling the very neighbourhood around by its air of "exceeding peace." Hither Dr. Johnson brought the remains of his beloved wife, and placed over her the Latin inscription that now meets our gaze. In his despair at the misery he saw impending, he had but three days before finally discontinued his 'Rambler.' Dr. Hawkesworth, the author of the 'Adventurer,' and of 'Almoran and Hamet,' and the translator of 'Telemachus,' also lies here. There are some interesting monuments to different bishops of Rochester. But an inscription on a stone "erected by voluntary contribution" on the outside of the church, more strongly arrested our attention than anything else in or about the edifice. It is to the memory of Elizabeth Monk, the wife of a blacksmith, who was herself childless; but it appears that "an infant to whom and to whose father and mother she had been nurse (such is the uncertainty of temporal prospects) became dependent upon strangers for the necessaries of life: to him she afforded the protection of a mother. Her parental charity was returned with filial affection, and she was supported in the feebleness of age by him whom she had cherished in the helplessness of infancy." The inscription is from the pen of Dr. Hawkesworth. The entrance into the churchyard lies beneath one of those curious canopies antiently called Lich-gates, from the Saxon *lich*, a corpse. Although the name appears to be here lost, we were gratified to find that the purpose of the porch is still remembered. An old man sitting on one of the graves said that they used to bring all the corpses through it, and set them down awhile under its cover. This gate, however, has been restored or rebuilt

at no very distant period; and having heard that an older one existed at the neighbouring village of Beckenham, we walked over to see it. Our readers have here a representation of the Lich-gate at Beckenham.

Returning towards the southern extremity of Bromley, we find a lane which leads us directly down to the Ravensbourne; and here, on the left, are the remains of an old moated manor-house called Simpson's Place. The site belonged to John de Banquel in 1302; from his descendants it passed into the possession of a family named Clark. William Clark, in the reign of Henry V., obtained a licence from that monarch to erect "a strong little pile of lime and stone," with an embattled wall and deep encircling moat. It was purchased in the following reign by John Simpson, who much improved the mansion, and gave his name to it. The moat (with water) yet remains on two sides; a part of the buttress at the south-east corner is also standing. Between the interstices of the ancient walls trees have struck root in various parts, and grown to a considerable size, so that the ruin has a very picturesque appearance. Leaving Simpson's Place and following the course of the river, we soon reach the spot here shown.

[Water-gate, Bromley.]

Beyond Bromley the Ravensbourne proceeds through some broad meadows towards a thick plantation; where its banks are fringed by alders and willows, through which one can with but difficulty make way, and where the occasional *whirr* of the partridge as it starts suddenly from the ground beside us, or of the pheasant mounting heavily upwards, speaks of the solitude that generally reigns over the place. As the river enters the park of Holwood-Hill Place, it widens and becomes very interesting. Here there is a waterfall, not of the Ravensbourne, but of the ornamental waters of the park into it, filling the air with its delightful sound. Along the banks are a great variety and profusion of flowers; the beds of primroses in particular are of the freshest hue, largest size, and most delicate perfume we ever met with. In different parts of its course, the tall and luxuriant foliage which has sprung up from the roots of the old trees, laid bare at some time almost to the surface of the ground, meet from bank to bank over the river; their mingling and arching branches reflected in all their picturesque intricacies of form in the translucent waters between. Rustic seats, placed here and there so as to command the most delightful views of the Ravensbourne and of the park, intimate that the beauty of the place is not unappreciated. The beds of plants floating in the river are very rich and luxuriant, presenting frequently interesting peculiarities of form, and almost always a vivid freshness of colour. The extremely sinuous course of the Ravensbourne adds greatly to its picturesque character. It is scarcely possible to find a dozen yards of it straight. This "river" does indeed wind "at its own sweet will," and a most vagrant will it is.

Bromley-Hill Place, the beautiful seat of Colonel Long, stands upon the summit of an eminence which slopes for a considerable distance regularly down to the Ravensbourne. On leaving the park, the river soon swells out into a fine sheet of water by the road side at South End, having in its centre a little summer-house almost hidden in foliage. From this place on its way towards Lewisham it turns various mills. At Catsford Bridge, near Rushy Green, it receives into its channel the small river Chaffinch, and after crossing Brockley Lane, the waters from the Lady-Well also,

[The Lady-Well.]

which is supposed to be the great spring mentioned by Kilburn as newly breaking out of the earth in 1472. In its properties it is said to resemble the Cheltenham waters. Queen Elizabeth was very partial to this spot and neighbourhood; on a hill near the well there was formerly an oak under which the "fair vestal throned by the West" dined on one of her "Maying" visits to Lewisham. When the tree decayed, another was planted in its room, to preserve the memory of the incident. The principal stream of the Ravensbourne flows on to the left of Lewisham towards the bridge, and thence along a pleasant valley to Deptford. But a branch of the river goes through Lewisham. We find this branch issuing from a covered channel near the commencement of the town, and thence continuing its rapid course through almost the entire length of Lewisham. This and the lofty trees which on one side or the other extend all along the road, give it an agreeable country aspect. Almshouses appear to be numerous here; and some of more than ordinary pretensions have just been built by J. Thackeray, Esq. They have quite a splendid appearance, with their light-coloured bricks set off by red round the windows, their large Saxon doorway in the centre, their gable roofs at each extremity, and the nicely-paved

court, and low handsome wall extending along the front. The interior does not disappoint the expectation which the exterior has raised: each house has a capital parlour, a bed-room with double windows above, and a little kitchen opening into a court behind. The poor widows who reside here are allowed, by the generous founder, four shillings a week, and a ton of coals yearly. The church contains several fine monuments, among which are one by Banks and another by Flaxman. This last has an inscription by Hayley. Here Dermody the poet was buried, at the age of twenty-eight. His depraved habits had previously reduced him to the most deplorable distress; and it was under such circumstances that he was discovered at Percy Slough, near Sydenham, by some friends, who used every exertion for his recovery. He died, however, almost immediately afterwards. His epitaph is a quotation from one of his own works, entitled the 'Fate of Genius,' and commences thus:—

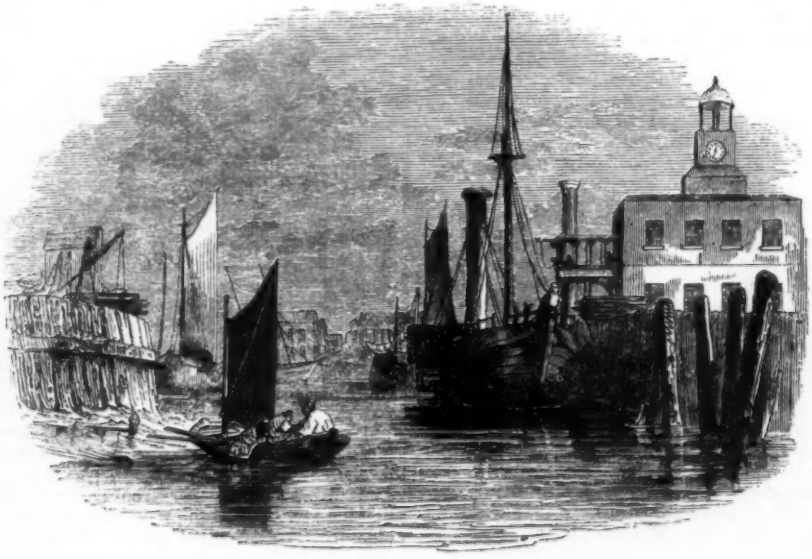
"No titled birth had he to boast,
Son of the desert, Fortune's child,
Yet not by frowning Fortune cross'd,
The Muses on his cradle smil'd."

In its progress from Lewisham to the Thames, the Ravensbourne supplies the great Kent waterworks, as well as various mills. Before we follow it any farther, let us rest one moment upon the bridge of Lewisham, and enjoy the picturesque scene before us. The Ravensbourne, as it comes through the arches, extends itself on either side along the line of the bridge, to a considerable breadth, and the front curves round a bank, half orchard, half garden, apparently, on its top, some of its lofty trees overshading the river. The sunlight is glancing among the leaves, and dancing brightly on the waters, where a graceful swan is arching its stately neck, and which, like Wordsworth's

"Swan, on fair St. Mary's lake,
Floats double, swan and shadow."

Our picture is not, however, complete without the return-chaise and the two poor jaded and dusty horses which the postboy is driving through the broad stream instead of over the bridge, to the exquisite delight of the poor animals, who have stood fast in the middle, determined to enjoy themselves while they can.

As soon as the Ravensbourne reaches Deptford (so called from the *deep ford* by which the river was there crossed), it loses its picturesque character, and flows, through a muddy and broad channel (when the tide is low), into Deptford Creek. Just before it reaches this place it is spanned by a noble bridge of three arches. Deptford Creek formed the harbour of the Danish fleets when they invaded Kent, some nine or ten centuries ago, and they lay here for a considerable time. What a contrast between their strange-looking ships, the naked shore, and the fierce half-barbarian soldiers wandering about, of that time, to the vessels, the buildings, which almost conceal the sight of the noble river beyond, and the general appearances of peaceful industry which now meet the eye in the self-same place.



Deptford Creek.

EXHIBITIONS OF MECHANISM AND MANUFACTURED PRODUCTS.

THE ADELAIDE GALLERY.

A RECENT article on the Polytechnic Institution, devoted to that portion of the exhibition which more particularly illustrates the arts and manufactures, may fittingly be followed by a notice of another institution somewhat similar in its objects, and also, like it, open to the public at a certain charge.

The exhibition in Adelaide Street, West Strand, belongs to a Society for the Illustration and Encouragement of Practical Science, one of whose objects is to receive for exhibition models, specimens of new inventions, and works of general interest, whether intended for sale or otherwise. It was assumed by the founders of the Society that the public display of such productions could not fail to encourage the exertions of individuals engaged in the manufacturing arts, and whose talents, from the want of being publicly known, are frequently lost both to themselves and to others; and in accordance with this view, such models and speci-

mens are received free of charge, and exhibited, generally with the inventor's name attached, in as conspicuous a manner as possible. Thus a large number of objects has been collected and formed into a public exhibition, the utility of which has been enhanced by the delivery of lectures on various branches of science and art, illustrating the uses of many of the models and instruments exhibited. These objects are nearly identical with those of the Polytechnic Institution, and there can be but little doubt that if judiciously managed there is ample room for both institutions.

The Gallery in Adelaide Street contains a miscellaneous collection of objects, some of which, we presume, for the purpose of blending amusement and elegance with practical utility, are but little connected with the main purport of the establishment. These, however, as well as the lectures, we do not intend to touch upon here; our purpose being to notice briefly the models, implements, and products illustrative of the manufacturing arts.

The objects exhibited are ranged on the floor, and in two encircling galleries of a large room called the Long Room, and in two or three smaller apartments. The floor or ground tier of the Long Room is occupied chiefly by models of steam and other engines, and by electrical apparatus. Near the door is a model of a machine for facilitating the operations of miners, by drawing up the ore or other mineral, and by lowering the miners to the required depth in the shaft. On advancing farther into the room models of steam-engines of various kinds are ranged around, some condensing, some high-pressure, others rotatory; some working models, and others merely painted. If the size of these models permitted such an arrangement, the utility of their exhibition would be increased by attaching the *names* of the more important parts, such as the cylinder, the air-pump, the governor, the parallel-motion, &c. We have so frequently heard inquiries made by visitors on such points as these, that we should venture to suggest the more extensive employment of labels and inscriptions.

Among the machines at the end of the room nearest to the entrance are a steam-gun, an apparatus for the combustion of steel, and another for the compression of water; on each of which we may say a few words. The steam-gun is an invention by Mr. Perkins, for showing the expansive force of high-pressure steam. Small leaden balls are dropped through an upright tube into a gun-barrel, through which they are propelled by a jet of steam from a boiler or boilers; the connection between the barrel and the upright tube being closed before the steam is admitted to act upon the bullets. The bullets are shot out with such force as to be flattened on an iron target at the other end of the room; and the adjustment is such that the successive bullets can be discharged at the rate of four hundred per minute. The combustion of steel is an exhibition illustrative of a striking difference between motion and rest in certain mechanical effects. A circular disc or plate of soft iron, about a foot in diameter, is connected with a steam-engine in such a manner as to rotate with the great velocity of five thousand times in a minute. While thus rotating, a file or other piece of hard steel is applied to the edge, and is cut or notched instantly, the steel flying off in a train of brilliant sparks, while the comparatively soft iron is scarcely abraded. This remarkable effect is due wholly to the great velocity of the softer body; an explanation which will avail also for the fact that a candle may be fired from a musket through a deal board. The compression of water is a problem which engaged much attention among scientific men in the last century, some deeming the liquid absolutely incompressible. Mr. Canton, however, and other experimenters, showed that water can be reduced in bulk by great pressure; and an apparatus in this Gallery, invented, like the two just alluded to, by Mr. Perkins, is intended to show within a small compass the possibility of effecting this. To understand the action of the apparatus, however, requires a little knowledge of the hydrostatic press and of hydrostatics generally.

The remark just made may be extended in some sense to other parts of the exhibition, viz. the electro-magnetic apparatus, of which there is rather an extensive collection. However praiseworthy may be the purpose for which this apparatus is placed there, it is certain that not one visitor in twenty understands its mode of operation. A shock may be sent through a number of persons, causing a momentary mirth and excitement; a magnet may be made to rotate and to yield sparks; the gymnotus, or electrical eel, may give forth sparks, and thus prove his claim to be ranked as an electrical apparatus; but very little real instruction can be gained from the inspection of such machines without a previous attention to the science to which they relate. Lectures are frequently given on these subjects in the institution, and individual inquiries are, as far as practicable, answered by the attendants; but these aids are of limited extent unless accompanied by some little study on the part of the visitor.

On a canal or reservoir of water are seen a few models of ships and other nautical apparatus; and in various parts of the floor of the room are other models, intended in most cases to illustrate some new principle or practice in ship-building. Here too are deposited several specimens of Delbruck's soldered metals, that is, pieces of metal which have been soldered by metal of the same kind as themselves. Those who are at all acquainted with manufactures in metal are aware that two pieces of metal are generally soldered together with another metal or solder more fusible than themselves; but a method has recently been discovered in France whereby the surfaces of two pieces of metal are partially melted by the flame of hydrogen gas, and united while in that state.

The upper gallery which surrounds the Long Room is chiefly noticeable for specimens of geological strata, fossil fuel, fossil plants, shells, and crystals, ranged in glass cases in a convenient position for inspection. There is also a glass case containing a large number of specimens of wood used in ship-building and for ornamental purposes. This is a very interesting series, for each specimen, squared and made perfectly smooth, is labelled, and in many instances the purposes to which such wood is applied are mentioned; such as the keel, the timbers, the knees, &c. of ships. This is one of the features which we deem to belong peculiarly to an institution of this kind, and to be worthy of extension.

The lower gallery is occupied by articles partaking more of an ornamental than of a practical character. We will therefore omit an enumeration of its contents, and proceed to speak of two or three smaller rooms connected with the two ends of the Long Room. These smaller rooms contain objects more practical perhaps than most other parts of the Exhibition, viz. series illustrative of the progressive states which a manufactured article assumes. Among these illustrative series are those relating to a knife, a fork, a file, a flask, a metal button, a candlestick, a tea-pot, a needle, hooks and eyes, combs, hats, glass, earthenware, silk, cotton, woollen, caoutchouc, asbestos, &c.

The object held in view in presenting these series is similar to that which we mentioned in allusion to the Polytechnic Institution, viz. to impart that kind of knowledge of manufacturing processes which may be acquired by witnessing the successive states which the raw material assumes. A brief explanation will show

how this is effected. A knife is represented in eight or nine different stages, from the rough bar of steel till it assumes its ultimate form of a polished knife. A fork is represented in a still greater number of forms, on account of the peculiar manner in which the prongs are produced. A button, such as those attached to suits of livery, is represented in about as many different states, from the plain blank forming the foundation, through the processes of placing and soldering the shank, fitting on the plated facing, &c. A flask, a candlestick, and a tea-pot are severally shown in a dissected form, by which the separate pieces of which each is built up may be seen, and the mode of manufacturing each in some degree explained. A needle is still more remarkable as showing the division of labour and the succession of processes involved in the manufacture: no less than nineteen specimens are ranged side by side, showing the same number of states or stages which a piece of steel wire assumes before it finally leaves the manufactory in the form of a needle: states which are produced by manipulative operation as curious as any in the whole range of manufacture. Hooks and eyes are similarly exhibited in the various steps which their manufacture involves. The materials for a hat, such as the beaver, hare, musquash, and other furs, the wool &c., are shown, first in the crude state, then as a 'batt,' then as a felted cap, and lastly, in the beavered or 'ruffed' state. Glass and earthenware are to a limited extent illustrated by specimens of the oxides, sands, clays, &c. employed in their production. The series illustrative of the cotton, woollen, and silk manufactures are very complete and interesting. Silk, wool, and cotton of a great variety of growths and produce are shown in their raw state, the various kinds laid in juxtaposition for facilitating comparison; they are then presented in their partially manufactured states, the cotton in the forms of lapps, drawings, rovings, yarn, &c., and the silk and wool in the parallel or analogous conditions. These last-mentioned specimens are very favourably placed for inspection; and we would venture to suggest that the various series illustrative of the manufactures in metal should, if practicable, be as conspicuously placed, which they are not at present.

In our No. 485 will be found an account of asbestos, a peculiar mineral susceptible of conversion into fire-proof cloth. A series illustrative of the various appearances of this substance is deposited in one of the rooms; and in another is a similar exemplification of the various uses to which caoutchouc is now applied.

We have thus briefly noticed the principal objects which seem most particularly connected with the views of the institution as regards the manufacturing arts, to which we may add a mention of the silk-looms, which are in practical operation in one of the rooms. To those parts of the exhibition which are devoted to elegancies or amusements it is not our purpose to allude.

Improvement of Poor Sand-Land.—The poor sandy heaths which have been converted into productive farms evince the indefatigable industry and perseverance of the Flemings. It is highly interesting to follow, step by step, the progress of improvement. Here you see a cottage and rude cowshed erected on a spot of the most unpromising aspect, where the loose white sand, blown into irregular mounds, is only kept together by the roots of the heath. Trenching and levelling the surface is always the first operation. A small spot only is first cultivated; but gradually the whole is reclaimed from its wild state, by the aid of unremitting industry, and above all by the dung and compost heap, and by the urine of animals. If there is no manure at hand, the only thing that can be sown on poor sand at first is broom; this grows in the most barren soils; and in three years it is fit to cut, and produces some return in faggots for the bakers and brickmakers. The leaves which have fallen have somewhat enriched the soil, and the fibres of the roots have given a certain degree of compactness. It may now be ploughed and sown with buckwheat, or even with rye, without manure. By the time this is reaped some manure may have been collected, and a regular course of cropping may begin. As soon as clover and potatoes enable the farmer to keep cows and make manure, the improvement goes on rapidly; in a few years the soil undergoes a complete change: it becomes mellow and retentive of moisture, and enriched by the vegetable matter afforded by the decomposition of the roots of clover and other plants. If about twenty small cart-loads of dung can be brought on each acre of the newly trenched ground, the progress is much more rapid. Potatoes are then the first crop, and generally give a good return. The same quantity of dung is required for the next crop, which is rye, in which clover is sown in the succeeding spring; and a small portion is sown with carrots, of which they have a white sort, which is very productive and large in good ground, and which, even in the poor soil, gives a tolerable supply of food to the cows in winter. Should the clover fail, which sometimes happens, the ground is ploughed in spring, and sown with oats and clover again. But if the clover comes up well amongst the rye-stubble, it is cut twice, after having been dressed with Dutch ashes early in spring. It is mostly consumed in the green state. The clover ley is manured with ten cart-loads of dung to the acre, and rye sown again, but not clover. After the rye comes buckwheat without any manure; then potatoes again, manured as at first, and the same rotation of crops follows. It is found that the poor land gradually improves at each rotation from the quantity of dung used. For want of sufficient manure, broom-seed is sometimes sown with the rye and clover. The rye is reaped, and the broom continues in the ground two years longer. It is then cut for fuel. The green tops are sometimes used for litter for the cows, and thus converted into manure. It is also occasionally ploughed in, when young and green, to enrich the land. Oats, clover, and broom are occasionally sown together. The oats are reaped the first year; the clover and young broom-tops the next; and the broom cut in the third. This is a curious practice, and its advantages appear rather problematical. All these various methods of bringing poor sands into cultivation show that no device is omitted which ingenuity can suggest to supply the want of manure. After the land has been gradually brought into a good state, and is cultivated in a regular manner, there appears much less difference between the soils which have been originally good and those which have been made so by labour and industry. At least the crops in both appear more nearly alike at harvest than is the case in soils of different qualities in other countries. This is a great proof of the excellence of the Flemish system; for it shows that the land is in a constant state of improvement, and that the deficiency of the soil is compensated by greater attention to tillage and manuring, especially the latter. The maxim of the Flemish farmer is, that "without manure there is no corn; without cattle there is no manure; and without green crops and roots cattle cannot be kept." Every farmer calculates how much manure is required for his land every year. If it cannot be purchased, it must be made on the farm. A portion of land must be devoted to feed stock, which will make sufficient for the remainder; for he thinks it better to keep half the farm only in productive crops well manured, than double the amount of acres sown on badly prepared land. Hence also he does not reckon what the value would be of the food given to the cattle, if sold in the market, but how much labour it costs him to raise it, and what will be the increase of his crops from the manure collected. The land is never allowed to be idle so long as the season will permit any thing to grow. If it is not stirred by the plough and harrows to clear it of weeds, some useful crop or other is growing in it. Hence the practice of sowing different seeds amongst growing crops, such as clover and carrots amongst corn or flax; and those which grow rapidly, between the reaping of one crop and the sowing of another, such as spurrey or turnips, immediately after the rye is cut, to be taken off before wheat-sowing. These crops seem sometimes scarcely worth the labour of ploughing and sowing; but the ploughing is useful to the next crop, so that the seed and sowing are the only expenses; and while a useful crop is growing, weeds are kept down.—*Rev. W. L. Rham's Flemish Husbandry.*

Cheerfulness.—Persons who are always innocently cheerful and good humoured, are very useful in the world; they maintain peace and happiness, and spread a thankful temper amongst all who live around them.—*Miss Talbot.*